Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

GEOGRAPHICAL RECORD

NORTH AMERICA

Recent Floods in the South. The flood which occurred in the mountainous region of western North Carolina after the heavy downpour of the night of July 15 illustrated in a practical manner the retarding effect of forest cover on the velocity of the run-off. According to measurement records of the Weather Bureau from 10 to 15 inches of water had fallen by the morning of the 16th. A flood of great velocity started on the headwaters of the Catawba River in the Blue Ridge, east of Mt. Mitchell. Its destructive effects, and that of other rivers whose sources lie in the same region, included the death of over eighty persons and the setting in motion of landslides and mud avalanches

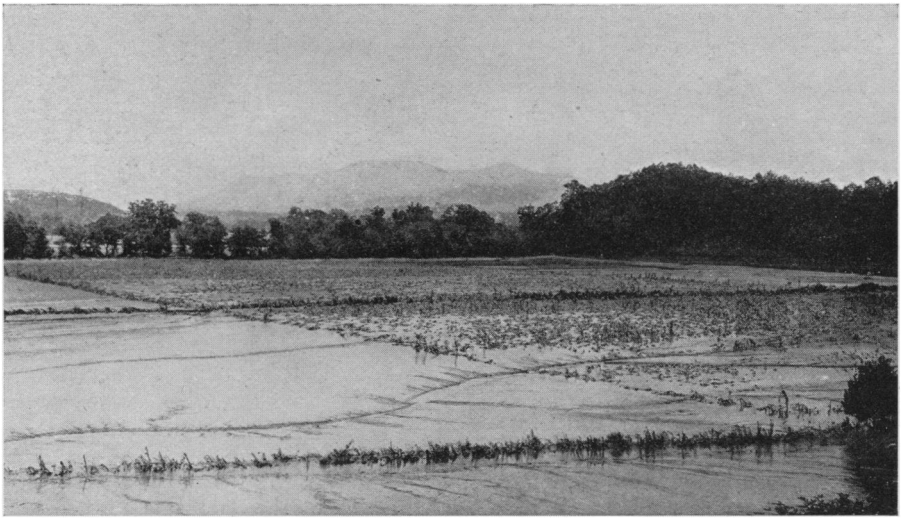

FIG. 1—View showing the effect of the flood of July 15 in the upper valley of the Catawba River in North Carolina. Cornfield laid flat and buried in sand. This view was typical of all lowland areas along the river. As the corn was in tassel there was no possibility of a second crop. (Photo by H. H. Chapman.)

which carried and strewed great quantities of boulders, tree stumps, and other débris in their path, destroying farms and, in places, leaving a waste where soil had been worth $200 an acre.

Throughout the afflicted area the danger was heaviest where a protecting belt of timber was lacking to arrest the progress of the silt and wreckage carried by the stream. Furthermore, the upper slopes of the mountains had until recently been devastated by forest fires and lay bare of trees. The overwhelming mass of water swept, therefore, unchecked on to the lower slopes. In one instance, on the Catawba River, the farm of George Carson, which was almost entirely carried away, could have stood the fury of the flood had a thick grove of timber on an island lying directly above the farm not been cut for the purpose of bringing more land under cultivation. In this case, the island itself was destroyed and at least fifty acres of valuable bottom land were ruined.

Upon investigation (see "Southern Floods and Their Forestry Lesson," by H. H. Chapman, *American Forestry*, August, 1916, pp. 476-479) it became apparent that the floods originated on steep slopes of high ridges. The steepness increased the normal run-off of the water and prevented absorption by the soil. The flood crests were particularly destructive, and a considerable portion of the total damage was due to their action, which

was likened to that of a bursting dam. Nothing but tree protection could have prevented the high flood crests and saved the river valleys from destruction.

About a month later, on August 9, floods devastated the valley occupied by Cabin Creek, a small tributary of the Kanawha, in the West Virginia coal district. Over one hundred lives were lost and millions of dollars' worth of property ruined. A large number of miners' cabins were swept away, rendering five thousand persons homeless. Four hundred square miles of bottom land were reported devastated. Eighteen miles of track on the Chesapeake and Ohio Railway were demolished. Every bridge was swept away. Railroad officials at the time declared it would take sixty days to rebuild the line.

A consequence of the excessive rainfall of that period was the bursting, on August 13, of the dam enclosing Lake Toxaway in North Carolina. The lake was an artificial body of water, having been created in connection with a summer resort. It was 550 acres in extent and 30 feet in depth and lay at an altitude of 3,000 feet on the

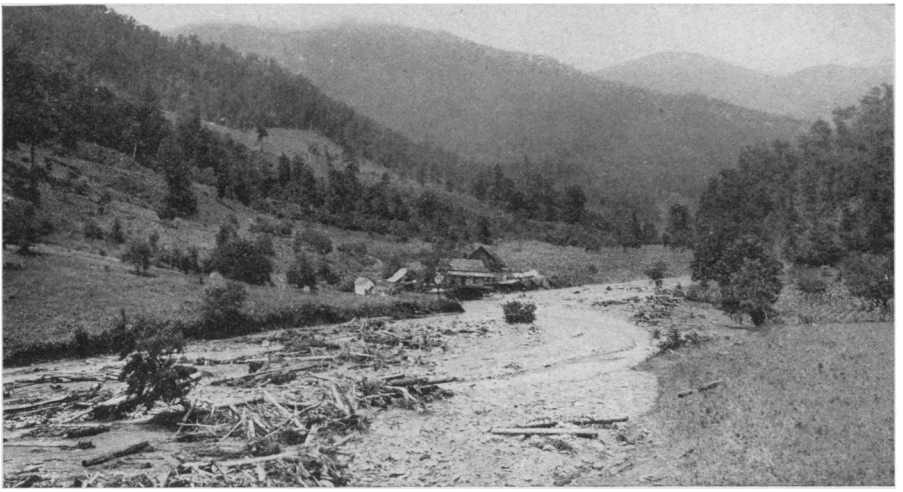

FIG. 2—View of flood effect of July 15 in Clear Creek, quarter of a mile below the junction of the upper forks. Forest ranger's frame house upstream hanging over the bank. In center, lower part of slide a thousand feet long, which crossed the stream. Site of a small sawmill on the left, which was completely destroyed, carrying boiler and engine several hundred feet downstream. One pile of lumber left, protected by a big drift of débris. Original channel of stream was 20 to 30 feet wide; the rest is cornland. (Photo by H. H. Chapman.)

Mississippi-Atlantic divide at the head of the French Broad River. It drained south through the Keowee River to the Savannah River. No lives were reported lost, but much damage was done in the lowlands of the upper reaches of the valley.

Forest Conservation and Stream Protection in the Southern Appalachians. Under the Weeks Law an important beginning has been made by the National Forest Reservation Commission (New England's Federal Forest Reserve, by Philip W. Ayres, *American Forestry,* July, 1915; abstracted in *Bull. Amer. Geogr. Soc.,* Vol. 47, 1915, pp. 875-876) in saving the steep mountain slopes of the South from deforestation and the train of evils that follow in its wake. The forests of the Southern Appalachians are the chief source of hardwood timber in the United States, and our future supply depends upon their conservation (The Southern Appalachian Forests, by H. B. Ayres and W. W. Ashe, *U. S. Geol. Surv. Prof. Paper 37,* 1905). They also hold the soil on the steep mountain slopes where otherwise it would soon be removed by erosion, since the region has the heaviest rainfall of any portion of the United States except the Puget Sound region, and frost action is vigorous. Through a careless system of agriculture many slopes, too steep for safe cultivation, have been cleared, farmed a few years, and abandoned because of gullying. Careless lumbering, forest fires, and, at Ducktown, the killing of the forests by copper smelting have aided soil erosion (Denudation and Erosion in the Southern Appalachian Region and the Monongahela Basin, by L. C. Glenn, *U. S. Geol. Surv. Prof. Paper 72,* 1911). The material eroded from the steep

slopes soon fills the channels of the small streams and increases floods and flood damages. It works down into the larger rivers, fills the storage reservoirs of the electric power companies, and builds bars and otherwise fills and obstructs the channels of navigable rivers, such as the Tennessee and others. The accompanying figure, based on a map prepared by the U. S. Forest Service, shows the large area affected by the streams flowing from the mountain area. It also shows how small the area already purchased is to the area that should be purchased to afford the needed protection. It is doubtless not intended that the area designated on this map as non-agricultural land shall

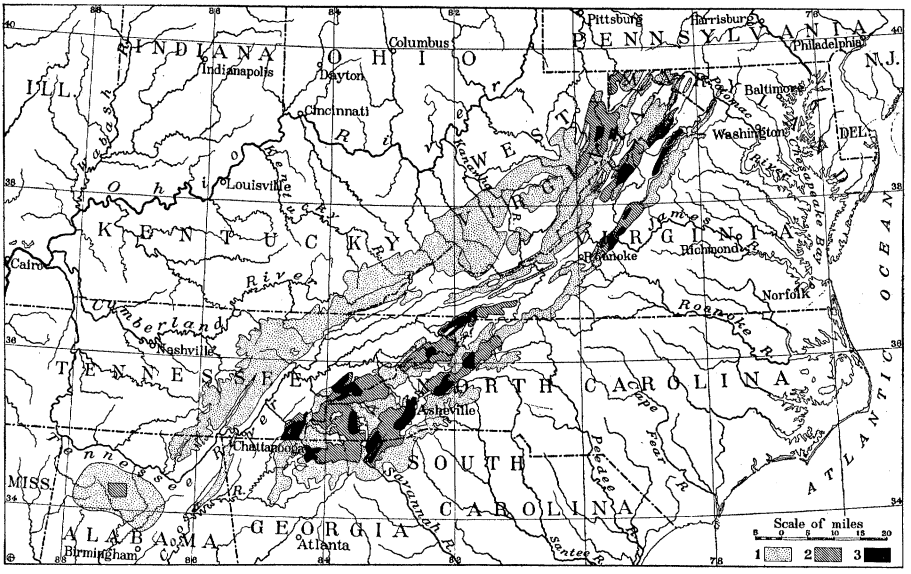

FIG. 1—Sketch-map showing the status of forest land in the Southern Appalachians, based on a map by the U. S. Forest Service. Scale, 1:10,750,000.

Key to symbols: 1, non-agricultural land; 2, areas in which land is being purchased; 3, tracts approved for purchase by the National Forest Reservation Commission.

be interpreted too literally, since in many parts of the region so designated there are stream valleys, level areas, and low slopes upon which a considerable agricultural population is found. The Weeks Law expired by limitation in 1915, leaving unexpended three of the eleven million dollars carried by the bill, and the Commission in its report to Congress in December last recommends a further appropriation of $10,000,000 (Further Appropriations Needed, *American Forestry,* Jan., 1916) for a period of five years to make additional purchases to protect the headwaters of navigable streams in New England and the Southern Appalachians. L. C. GLENN.

Currents Off the Alaskan Coast. A prevailing current flows northward and westward along the coast of British Columbia and Alaska at an estimated velocity of 0 to 1½ knots. It attains its maximum intensity near the coast, generally within the 100-fathom curve, and varies greatly with the winds. Details regarding conditions affecting navigation can be gathered from the "United States Coast Pilot for Alaska, Part II: Yakutat Bay to Arctic Ocean," the first edition of which has recently been issued by the U. S. Coast and Geodetic Survey.

It seems probable that the Japan Current does not reach the shores of the Alaska Peninsula and that it does not even attain the southernmost of the Aleutian Islands. The warm current generally believed to originate in the Gulf of Alaska and flowing westward along the coast to Unalaska Island appears to be continual. Its influence is reflected in the milder climate of the southern coast of the peninsula, and this accounts for the natives' preference to live in the locality rather than on the mainland coast, which is subject to Bering Sea influences.

The currents in the Aleutian Island passages are generally strong and almost always flow into Bering Sea. The temperatures in these currents are not high enough to war-

rant belief in their being part of the Japan Current. Southward of the Aleutian Islands there is often a current toward all the passages; but farther off shore, well out of sight of land, the Japan Current is found setting eastward. On the northern side of the islands the current sets eastward. Bad weather, as a rule, affects the regular flow of water in all the region, and an abnormal current is often a storm warning.

Land Developments in Arizona. Public attention in Arizona has lately been focussed on two Federal operations—the assignment of 2,000,000 acres of land for a Papago Indian reservation (*The Nation,* Jan. 27, 1916) and the range experiment now being conducted by the U. S. Forest Service (*The Independent,* Jan. 31, 1916). Both movements are in response to the scant water supply of southern Arizona. The Indians—Papagos and Pimas—have suffered from American and Mexican encroachments on their land and water rights, even in the reservations. A few Papago Indians are located on the Pima and two other small reservations, but the majority of the tribe, scattered over the northern part of the great Sonora Desert, has maintained the free and independent life so charmingly described by Carl Lumholtz in his "New Trails in Mexico."

The aridity of southern Arizona imposes a seasonal nomadism on its inhabitants. The Papagos, who raise crops on the flat valley floors in the summer, move in the winter to the better-watered sierras. The cattle ranchers, similarly, have their winter and summer ranges. The conservation of these, in a land where grazing must form the principal ultimate resource, is a matter of public concern. This is a part of the valuable work of the national Forest Service. Within the last few years reconnaissance work has been carried out on the Arizona ranges. Today an important experiment is in operation. Twelve years ago the depleted Santa Rita Range was withdrawn from the public. Now 50,000 acres, divided into four sections, two each for summer and winter ranges, have been opened to 800 head of cattle. The range includes two distinct types of grazing, the one characterized by mesquite, brush, and scant grass, the other by the excellent grama grass; hence it is well adapted to the experimental purpose.

EUROPE

Early Danish Hydrographic Surveys. The beginnings of chart-making in Denmark can be traced to the first half of the seventeenth century. This period is one in which notable progress was made in the Danish shipping industry. In August, 1622, Johan Isaksen Pontanus, the Royal Historiographer, was commissioned to prepare a Danish edition of charts of the coasts of Denmark. Prior to this time navigators had been obliged to rely on foreign compilations, mostly made in Holland. But the information collected on the foreign charts lacked accuracy, and the need of an actual survey was keenly felt by Danish seamen.

Pontanus appears to have been unable to fulfill the royal instructions, and it was not until 1688 that surveying operations of a practical value were undertaken. In the summer of that year a chart of the Sound was prepared under the supervision of Jørgen Dinesen Oxendorph, then Director of Navigation. The chart, however, was never published, according to a notice on the "Life and Cartographical Work of Jens Sørensen," accompanying the collection of charts prepared by this hydrographer and recently reproduced in facsimile and edited by Johannes Knudsen under the auspices of the Carlsberg Foundation at Copenhagen (F. Hendriksen, publisher). The same fate befell a chart of the entrance channel to the port of Copenhagen, drawn in January of the next year. Various attempts made before that time were equally fruitless. The appointment of Jonas Vestmand as Marine Surveyor in 1647 bore no results on account of his death in 1649.

The period of accomplishment dates from May 30, 1689, when Jens Sørensen's request to the king for "permission to make new charts" was presented. The applicant pointed out the serious errors contained in the Dutch charts, then the only ones available, and dwelt on the dangers lying in the path of Danish navigators sailing in home waters and especially in the Baltic. He also called attention to the knowledge of hidden reefs and shoals which he had acquired in the course of twenty-one years' experience in those waters. In proof of his earnestness he submitted the drawing of one of the charts he had prepared in person.

His petition was received with favor, and on the 11th of June of the same year he learned that the king had entrusted him with the task of "preparing for print new sea charts of the Baltic and our waters." In 1690 a vessel was placed under his orders for the carrying out of surveys in Danish waters. Special surveying cruises were undertaken in 1692, 1694, 1697, and 1703. In the years 1705 and 1706 Sørensen even

ventured to extend his observations to the Norwegian coasts of the Skagerak from Kjæringøen to Christiania and from the mouth of Christiania Fiord to Arendal. His field operations ended in 1706. While engaged in the task of drafting his results, the Great Northern War of the years 1709-20 broke out and prevented the Danish treasury from providing further funds for surveying work.

A comparison of Sørensen's charts with modern productions reveals the superiority of his work over similar publications of his contemporaries. His achievement is noteworthy when we consider the primitive character of his methods and instruments (his surveys were based only on compass bearings and measured or estimated distances, no positions being astronomically determined) and the fact that his scientific education had been neglected. His great familiarity with Danish waters, added to a keen power of observation, alone enabled him to produce the accurate outline of the Danish coast and the complicated system of its waters. Unfortunately the international conditions then prevailing prevented his charts from being published. The Danish Admiralty was adverse to the dissemination of the information which he had gathered. His charts were used only on board the king's ships, even merchantmen of Danish nationality not being allowed to keep copies.

The Population of the Baltic Provinces of Russia. An article on the inhabitants of this region, written from the German standpoint, is contributed by Dr. H. Rosen to *Petermanns Mitteilungen* for September, 1915 (see the entry in the March *Review*, with comment on the accompanying map). The three Baltic provinces of Courland, Livonia, and Esthonia are considered as a domain of German culture and of Protestant faith controlled by Russian political and religious power. Persistent attempts to Russify the region have been carried on since 1880 without, however, producing noteworthy results. In the revolutionary period of 1905 this section of Russia was considerably affected. The Lettish element in its population is considered as a mixture of Aryan and Finnish peoples, this being somewhat at variance with the generally accepted belief in the purity of the Aryan stock peopling these provinces. The Esthonians, too, according to Doctor Rosen, are a product of the blending of Finnish and Teutonic peoples. He cites in point the Fellin district in southern Esthonia, where a very pure Teutonic type is met among peoples of Esthonian speech. The Poles who inhabit these provinces number some 36,000 individuals and are represented as being strongly Germanized. The 62,686 Jews who make up 2.65 per cent of the total population are also faithful supporters of German ideas.

The Lithuanians are distributed mainly in the governments of Kovno and Suwalki, which adjoin the German province of East Prussia. They consist of Lithuanians proper and of Shamaits, otherwise known as Zhmuds. Very few dialectical differences exist between the two. The latter cluster mostly in northwestern Kovno without, however, attaining the Baltic shore. According to the last available Russian census (1897) they number 1,638,530 inhabitants, of whom 1,113,853 live in the Kovno government, 304,548 in Suwalki, while 220,129 are distributed in the Polish and Baltic governments. Emigration in the past decade to large Russian cities and America has decreased their number appreciably. The Lithuanian as a rule is not on the best of terms with neighboring peoples. He looks upon the Russian as his political oppressor and upon the Pole as his hereditary foe. The Lett is regarded, with somewhat less animosity perhaps, as a rival.

A Masurian element constitutes the majority of the inhabitants of Augustovo and Seiny, the two southernmost districts of the government of Suwalki. The German element is strongly represented in the entire region. It forms a contingent of some 70,000 individuals in the governments of Kovno and Suwalki. In the province of Courland the Germans boast of 51,000 resident kinsmen. As a rule this section of the population is confined to the cities. Riga, Reval, Libau, Dorpat, and Mitau each contain notable percentages of Germans among their citizens. The first-named city numbered 65,332 of these westerners in its population, or over 25 per cent of the total.

The Winter Climate of the Eastern Mediterranean. Major H. G. Lyons, President of the Royal Meteorological Society, read a paper on the winter climate of the eastern Mediterranean before that society at its January meeting (*Quart. Journ. Roy. Meteorol. Soc.*, April, 1916). Taking into consideration the special interest in the eastern Mediterranean at the present time, the author considers it important to study the climatic conditions of that region because of their bearing upon naval and military operations. Meteorological observations and problems now have a very practical value. The general weather characteristics of the eastern Mediterranean range from the rigorous continental type met with in the high plateau of the Balkan states to the uniform Mediterranean type of southern Greece and the Levant and the subtropical climate of Egypt. In the Balkan Peninsula, temperatures of 0° Fahrenheit have frequently been

recorded on the high plateau up to the month of March, and it is only when nearing the Aegean Sea that there is a mean temperature above 32° for all the winter months. Associated with the continental type, the monthly precipitation is comparatively uniform, taking the form of heavy showers rather than of continuous rain. In the coastal region the winter months have heavy rainfall. In Egypt the rainfall of the winter months is insignificant. Snowfall is reported as far south as Athens, but even at Saloniki the days with snow are few. Inland, the number of days with snowfall increases to about one-third of the days with precipitation in the Bulgarian hills. Severe conditions occur occasionally at Saloniki, where, in 1903, the sea was frozen for two days to a thickness of 1 centimeter. In regard to the gales which have been frequently experienced in the Aegean Sea during the progress of the war, it is the opinion of Major Lyons that those from the southwest do not appear to have been common in past years, but may be considered generally to be the result of cyclones passing over the north of the Balkan Peninsula or approaching the west of Greece. These are normally of short duration, lasting seldom more than one or two days. The normal winter pressure distribution, however, with anticyclonic conditions over Russia, and extending to the Balkans, favors a gravitational flow of cold air from the north. When associated with marked cyclonic conditions in the south, northerly gales hold for four, five, or six days. R. DEC. WARD.

Junction of the Greek to the Main European Railroad System. The recent completion of the railroad link along the Aegean between Gida on the Saloniki-Monastir line and Papapuli, in Thessaly, will, after the war is over, put Athens in direct rail communication with all European points northwest of the Balkans. According to *Commerce Reports* (May 27, 1916, p. 771) the connecting line is 56 miles long and transportation was to begin during May.

The roadway will benefit Athens and the Piraeus particularly. The journey between Paris and the Greek capital will be reduced to some sixty hours. Part of the freight routed to cities in Asiatic Turkey, via Constantinople and Saloniki, will probably be diverted to the Piraeus and shipped thence by water to Smyrna. Furthermore, thanks to its through connections, the port of Piraeus now becomes the European railhead nearest to Egypt and the water route to India. It may therefore attract in time part of the Indian trade and enable European lines to compete with the much-advertised, though still incompleted, Bagdad Railway.

Greece's economic condition will change materially through this important connection. A European transcontinental line ending at Athens is bound to affect Greek maritime trade in general. Locally, the bringing of Saloniki to some twelve hours' ride from the capital must also cause readjustments in internal trade.

Rumanian Trade with the Warring Nations. Prior to Rumania's declaration of war, the swinging of her political pendulum between the two hostile groups in Europe was the subject of much comment. A survey of the country's economic geography and the analysis of figures supplied by Dr. Luigi Bissoli in the March, 1916, number of *L'Esplorazione Commerciale* of Milan is illuminating in this connection. Rumania, like all the Balkan states, is essentially an agricultural country. It exports the products of its fields and imports industrial goods. Fully eight-tenths of its exports consist of cereals, part of which was supplied to the Central Powers before the outbreak of the European War. The participation of Turkey in the hostilities cut off Rumania completely from intercourse with France and her allies, as the Dardanelles route was blocked. With Russia herself carrying an unprecedented surplus of cereals, Rumanian agricultural products naturally found their way to Austria and Germany when the demand was keenly felt.

But if Rumania found a market for her cereals in Teutonic countries, her attempts to become a country exporting live stock were thwarted by the high tariffs raised by Austria-Hungary against Rumanian hogs and cattle. The Rumanian farmer therefore entertained a grievance against the government of the Dual Monarchy, and the country's determination to fight must be considered in part as an attempt to break through this foreign economic bondage.

Rumania's most pressing industrial needs, consisting of coal and steel products, could likewise be supplied by the Teutonic Powers. Russia, the only member of the Entente which Rumania can reach by direct communication, cannot purvey to Rumania on account of her own needs. Without German coal, Rumania's small but thriving industrial activity faced complete cessation until the end of the war. This dependence of the eastern Latin state on the countries of Central Europe became inevitable with the closing of the Dardanelles seaway and the Bulgarian land routes.

Prior to the European War, approximately 64 per cent of Rumania's imports came

from Germany and her allies as well as from Belgium. The value of this trade amounted to about $77,000,000. From the Entente countries Rumania imported about $38,000,000 worth of goods; 56 per cent of its exports, valued at $79,000,000, went to the Teutonic group. The Allies' share was 24 per cent, representing $34,000,000. The balance found its way to Egypt, Gibraltar, Holland, and Belgium. It is interesting to note that the bulk of Rumanian wheat in the years 1911 to 1913 was directed to Belgium, whence it was reshipped to English and German localities of consumption.

Rumania's intercourse with Russia is necessarily limited on account of the identity of the economic conditions prevailing in both countries. The requirements of both countries are likewise similar. As long as Rumania's maritime commerce with Italy and France is hindered by the closure of the Turkish straits, the country will naturally turn to Central Europe for commercial exchange. But Rumania's entry into the war indicates that the Entente Powers have either succeeded in finding means of supplying her with industrial products, through the great improvement in Russian rail communication of the past two years, or else it is a sign that the Russian staff, working in conjunction with the Allies' forces in the Balkans, foresees the possibility of establishing maritime communication with Europe, by the Aegean, after having forced a way through Bulgaria.

AFRICA

The Position of the Suez Canal in World Politics. The repeated efforts of Turco-German armies to wrest the Suez Canal from British hands have awakened widespread comment in German periodicals. The *Geographische Zeitschrift* in its February number contains an article on this subject by Arthur Dix (Die verkehrspolitische Bedeutung des Suezkanals, Vol. 22, No. 2, pp. 87-91) in which the value of the waterway to England is explained. According to this writer over a fourth of the total British tonnage on sea passed through the Suez Canal in 1912. The traffic by nationality for that year is given as follows:

NATIONALITY	NUMBER OF VESSELS	TONNAGE
British	3,335	12,840,000
German	698	3,025,000
Dutch	343	1,240,000
Austrian	248	814,000
French	221	799,000
Italian	143	368,000
Russian	126	364,000
Japanese	63	320,000
Danish	45	139,000
Swedish	38	138,000

In value also about the same proportion exists between the total British export trade and the amount routed via Suez. The figures are given as 26.8 billion marks ($6,700,000,000) and 6.3 billion marks ($1,575,000,000) respectively. It is pointed out that the loss of the Suez Canal cannot be conveniently offset by the possibility of sending freight via Panama or the Cape routes. The cost of transporting is raised considerably by the increase in time and fuel consumption. It would affect England seriously, because a considerable quantity of its imported raw products are derived from India, the Far East, and Australia.

The Bagdad railway, controlled by Germany, and German East Africa are considered the two great rivals of the Suez Canal. When completed the Turkish line will provide Central Europe with a direct land route to the Persian Gulf and India. The traffic of the Suez Canal may be reduced somewhat by the operation of this new line. The German East African colony lies in the path of traffic directed towards Suez from an important portion of Africa. Moreover, it occupies a position from which it can threaten the Sudan. In a perhaps somewhat far-fetched vision the German writer attributes British possession of the Sudan and Uganda to the desire to reinforce the hold obtained at Suez.

All this explains the continued attempts on the canal, the recent one, early in August, having been thwarted like its forerunner in February. A successful attack at this vital spot of the British Empire would jeopardize both England's and her allies' chances of success in the present conflict. It is impossible to realize exactly the nature of preparations made by the British staff east of the waterway, but the recent rebuff of the Turks increases the probability that practically impenetrable lines have been constructed. The region is not as flat as is generally believed. Its surface is undulating, and the difference in levels is sufficiently pronounced to make it convertible into a strongly fortified

area. Of the three routes leading towards the canal from Turkish territory, the northernmost, running behind the sand-dunes of the Mediterranean, is alone well supplied with water. To the south lack of water is a hindrance to the movement of large bodies of men.

The Past and Present Water Supply of Cyrenaica. In the *Geographical Journal* for May, Professor J. W. Gregory presents a valuable and interesting discussion of the resources and prospects of Cyrenaica (modern Barca), the plateau on the north African coast opposite Greece which was a flourishing region during antiquity. The vital question is whether the climate is now the same as in the days when Cyrenaica was "an earthly paradise." Even within the last century travelers visiting the country in rainy years have described it as like an English park, but according to Professsor Gregory, it is "an arid, karst-land horst" with "a deplorably limited water supply" and only slight prospects of development. Yet he holds that the climate is now the same as when "the plateau produced abundant crops of corn; its coastal plains grew rice and dates; . . . . and its citizens proved famous for intellectual power and physical prowess." As a necessary corollary he believes that the *silphio*, a medicinal plant once held in high esteem, must "have been deliberately exterminated in ancient times."

Fortunately Professor Gregory employs concrete figures. Take, for example, Cyrene with its ancient wall about four miles in circumference and its cemeteries of unparalleled extent. Its springs, as measured by Professor Gregory's party in the summer of 1908, yield "only a paltry 84,000 gallons a day," while its reservoirs, which were dry in 1908, have a capacity of only one and a half million gallons. On the basis of this water supply he estimates that the population of Cyrene cannot have been more than 15,000 to 25,000. This allows ten gallons per day per inhabitant; but deducting the "water that would be used for cattle and stock and irrigation, ... the amount . . . . left for personal use would be only two or three gallons."

Mr. D. G. Hogarth, in discussing the paper, says that we have "singularly good authority that the city of Cyrene had a population of over 100,000 persons." He suggests that the discrepancy between the present water supply and the past population may be because there were many slaves in ancient Greek cities, and they used less water than freemen. If we accept Professor Gregory's figures as to water supply and Mr. Hogarth's as to population—the points in which the two men are respectively authorities—the present water supply would in ancient times have sufficed to give only about two and a half gallons per day per person for all purposes, or one fourth as much as Professor Gregory considers necessary. Moreover the rainfall at Benghasi, the nearest place with a record, averaged only 11.1 inches from 1891 to 1905. At similar places in the United States the rainfall often declines to only 5 or 6 inches. This would not suffice to fill the reservoirs at Cyrene, and the water supply from the springs alone would be scarcely one gallon per person. A great city, whether slave or free, could scarcely exist when frequently confronted by such conditions for months or even years.

ELLSWORTH HUNTINGTON.

ASIA

Activities of an Anthropological Expedition in Arctic Siberia. We are now able to outline the work of the anthropological expedition to Siberia under the joint auspices of the University of Pennsylvania Museum and the Oxford Committee for Anthropology, to which reference was made in the December, 1915, *Bulletin of the American Geographical Society* (p. 960). The headquarters of the expedition were established at the head of the estuary of the Yenisei River, 400 miles below the extreme limit of the great forest belt. Camp was reached down-river by a small paddle-wheel steamer brought there thirty years ago by the Captain Wiggins who reopened the northern trade route through the Kara Sea, a route, it will be recalled, that has been the subject of much comment during the last year. Good opportunities were found for the study of the Samoyedic and Dolgan tribes that frequent the coastal lands of western Siberia. The latter, described as Yakutized Tungus, roam over the country between the upper Khatanga and the mouth of the Yenisei. Much material was collected on the shamanism that still permeates the culture of these peoples of reindeer civilization. The oldest racial element in the lower valley was found to be the Yenisei Ostyak, now limited to the country immediately above the river settlement of Turukhansk. This people represents the fast-disappearing remnant of a fair-haired, blue-eyed stock, the major part of which, dwelling to the south, has been absorbed by Turkic invaders.

The expedition wintered among the Tungus of the Limpiisk tundra, east of the Lower Yenisei valley. These people are less dependent on the reindeer than the

Samoyeds. They are energetic hunters and fishers. On the return journey the expedition devoted a short time to a study of the *kurgani*, or burial mounds, of the Abakan steppe. The so-called Tatars dwelling on the steppe have been considerably affected by Russian influence. Not a few have abandoned nomadism for agriculture. (H. U. Hall: The Siberian Expedition, *Univ. of Pennsylvania Museum Journ.*, March, 1916, pp. 27-45.)

Reforestation in China. The *Review* called attention in its April number (pp. 301-302) to afforestation undertaken in China for the purpose of protecting bare hills and plains. Further news of this work is gathered from communications sent by the College of Agriculture and Forestry at Nanking. By means of circulars to Chinese provincial governors, chambers of commerce, and leading newspapers, the institution is calling attention to the dangers of agricultural insect pests and fungus diseases. The practical character of its labors is thus laid before the Chinese, who, in many instances, have shown appreciation. A significant step was taken by the Ministry of Agriculture and Commerce at Peking in 1915, when all the students of its forestry school were transferred to Nanking for training.

The varied activities of the Nanking forestry school comprise the systematic development of the native fruit industry. The Chinese have no general knowledge of the valuable varieties. Neither do they know which districts in their country are best suited for these. Valuable knowledge is being disseminated among them through the co-operation of missionaries. These devoted pioneers of Western ideas also render great assistance by giving reliable information about the districts with which they are familiar.

Perhaps the most significant proof of the Chinaman's awakening to the importance of his forests is revealed by a recent decision of the Chinese Minister of Agriculture and Commerce which calls upon the Chinese to observe Arbor Day. According to a recent issue of *Commerce Reports* (May 26, 1916, p. 765) five thousand magistrates in the country were instructed to invite the people of their respective districts to plant trees on that holiday. The example was given to the nation by the minister in person, who, on April 6, the occasion of the "Ching Ming" national holiday, went to the hills west of Peking in company with officials of his department and of the School of Forestry in order to plant a number of trees. The conversion of the "forestless" nation into a country containing an important acreage reserved for trees of commercial value, will, it is hoped, be marked by these beginnings.

Tachienlu, the Chinese Gateway to Tibet. For centuries Tachienlu (30° N. and 102° E.) has been the main gateway into Tibet. The highroad that runs through it from Pekin via Lhasa to Leh in Cashmere has permitted the western flow of Chinese conquest, trade, and civilization. Tachienlu marks the natural boundary to this spread. It is situated on a line of geographical and ethnological cleavage: eastward the country is in all respects Chinese, westward it is Tibetan save for the sprinkling of Chinese officials and traders. The town is a trading center, for its location defines not only a change in products but also in transportation. Goods from Yachow, the western depot of Szechwan, are carried by coolies to Tachienlu: there transport for the high plateau is exchanged to yak, mule, or pony. Apart from a small local and retail trade, business is transacted between the Chinese firms of Tachienlu and the Tibetan merchants coming in with their annual caravans. Goods are chiefly obtained by barter, but a few merchants are buyers or sellers only. The former pay in gold dust or in the Chinese rupee, a coin specially minted for frontier use, and the latter accept the rupee or silver. Exceptionally one or two merchants of high credit remit their accounts direct to Shanghai via India. The principal trade of Tachienlu is in brick tea, an item that during an average year accounts for some $700,000. It is controlled by a system of licenses issued by the provincial government and distributed by the Tea Guild under what are practically monopoly conditions. Revenue from the sale of licenses is now devoted to frontier administration. Since 1910 Tachienlu trade has shown a decline. Tibet has been supplied with tea to some extent by India, by trade channels that are almost certain to develop at the expense of the Chinese route (Report for the Year 1913 on the Trade of Tachienlu, *Diplomatic and Consular Repts.*, Ann. Series, No. 5561, London, 1916).

Disputed Sovereignty over a Philippine Island. From a Dutch source (*De Indische Gids*, Vol. 37, 1915, No. 12, p. 1754) comes the information that the sovereignty over Palmas, or Miangas, Island, a small island in 5°35′ N. and 126°35′ E., southeast of Mindanao, is in dispute between the governments of the United States and the Netherlands. While its position places it within the limits of the islands ceded by Spain to the United States according to the Treaty of Paris of 1898, the proximity to

their East Indian possessions seems to have prompted the Dutch to claim it. The fact that the Dutch have made the only available survey of one of its anchorages (see inset on U. S. Coast and Geodetic Survey Chart No. 4724) attests their interest in the island. The dispute is, according to a recent Dutch "orange" book, to be settled by arbitration.

POLAR REGIONS

Rescue of the Marooned Men of Shackleton's Weddell Sea Party. Shackleton's repeated efforts to rescue the twenty-two men who were left stranded on April 24 on Elephant Island in the South Shetland group, as related in the July *Review* (p. 56), have at last been crowned with success. A brief cablegram from Shackleton dated Punta Arenas, September 3, says that all the men have been saved and that all are well.

Details of the rescue are given in a cablegram from Shackleton to the *New York World,* published in its issue of September 5. On this, the fourth attempt, a course was set to approach Elephant Island from the northwest, as Shackleton hoped the ice would have worked toward the northeast. This hope was realized and, on August 30, after steering in the fog through the numerous stranded bergs, the camp of the marooned party was reached at 1 P. M. All were well, and an hour later they were homeward bound.

The men had endured many hardships since Shackleton left them on April 24. The day after his departure the island was beset by dense pack ice. The party was confined to a narrow spit of land 250 yards long and 40 yards wide surrounded by inaccessible cliffs and ice-laden seas. The party was forced to abandon the ice hole in which they had first taken refuge; they made a dwelling of their two boats, supported by rocks and set up as far as practicable from the sea. The weather continued appallingly difficult to work in, and the vitality of the whole party was lowered owing to exposure.

In May a heavy blizzard swept much valuable gear into the sea, and there was great danger that the men themselves would be swept away by the heavy seas. Fortunately, owing to the low temperature, an ice foot formed on the seashore, and this protection was the means of saving the party from total destruction. On several occasions the adjacent glacier calved, throwing up heavy waves, and on one occasion blocks of ice were hurled to within fifteen feet of their dwelling.

Realizing what difficulty Shackleton would have to reach them, Frank Wild, in command of the party, took drastic measures to insure a sufficient food supply. At first only one meal was allowed daily, until the reserve of blubber had been increased. The special rations were only used for two meals weekly and supplied a vital change in the diet. The meat supply, which was greatly depleted, was periodically replenished by small penguins. No seals could be killed after the May blizzard, as they were unable to land because of the ice foot. At the beginning of August, the men were able to collect seaweed and limpets, which formed a valuable change in their diet. Thus life was successfully maintained.

From June on the weather was better as regards wind, but the party was under a constant pall of fog and snow. In the middle of the winter the toes of one of the men had to be amputated. Whenever the sea opened, the men's hopes of relief were renewed. Shackleton's three previous attempts at relief, it develops, had synchronized with times when the island was beset by ice. The fourth attempt was successful because on August 28 a gale had driven the pack from the island.

Of the four attempts undertaken by Shackleton to reach his stranded companions, the first was made from South Georgia on May 23 in a whaling vessel furnished by a Norwegian whaling station. The boat was unable to penetrate the pack ice and so made for the Falkland Islands, arriving at Port Stanley on May 31. It was from here that Shackleton telegraphed an account of the drift and fate of the *Endurance* (see the July *Review,* pp. 54-57, with map). The second attempt was begun on June 8 when the steamer *Instituto Pesca* of the Uruguayan Bureau of Fisheries left Montevideo, stopping en route at Port Stanley on June 17 to pick up the explorer. On June 25 the attempt was abandoned, as it was impossible to reach Elephant Island because of the ice. The ship had been able to approach within twenty miles, however, and it had been ascertained that penguins abounded on the island. This made it seem probable that the men would be able to subsist until help came, although they had only five weeks' rations with them. On July 13 Shackleton made a third attempt, sailing from Punta Arenas on the schooner *Emma.* This trip, too, was a failure. The schooner was forced back by heavy gales and ice fields and, with engines injured and hull battered, put back to the Falkland Islands on August 4. The final and successful trip was begun on August 26 from Punta Arenas on the Chilean government steamship *Yelcho,* which on the previous attempt had been used to tow the *Emma* as far as possible on

her way. Had this last trip been unsuccessful, Shackleton would have gone south in the *Discovery,* Scott's old vessel, which was being fitted out in England by the British government for the purpose.

The rescued men include: Frank Wild, second in command of the expedition and commander of the party on Elephant Island; James Wordie, geologist; Leonard H. Hussey, meteorologist; R. W. James, physicist and magnetician.

This rescue will remain noteworthy in the annals of Polar exploration. Only the leader's energy and perseverance and the endurance of the marooned party could have turned aside the impending disaster. It is to be hoped that similar good fortune awaits the ten other members of the expedition in the Ross Sea region, who have not been heard from since May 6, 1915.

Return of the Southern Party of the Stefansson Expedition. The arrival of the power schooner *Alaska* on August 15 at Nome, Alaska, with the members of the southern party of the Stefansson expedition on board, was announced in the daily press of August 17. The expedition, it will be recalled, was divided into two parties, the northern, under Stefansson himself, and the southern, under Dr. R. M. Anderson. The fortunes of the northern party were recounted in the July, 1914, and October, 1915, numbers of the *Bulletin of the American Geographical Society.*

The *Alaska* left her two years' station at Bernard Harbor on Dolphin and Union Strait, between Victoria Island and the mainland, on July 13, 1916, and reached Herschel Island off the Mackenzie estuary on July 28. She then proceeded westward along the Alaskan coast and southward to Bering Strait until she reached Nome. The following members of the scientific staff returned on the *Alaska:* Dr. R. M. Anderson, executive head of the southern party, geologist; J. J. O'Neill, geologist; J. R. Cox, topographer; D. Jenness, ethnologist; F. Johansen, naturalist. K. G. Chipman, chief topographer, is returning by way of the Mackenzie River.

The following account of the activities of the party which covered the Arctic mainland coast of Canada from Cape Parry (124° W.) to Bathurst Inlet (108½° W.), is based on a cablegram from Doctor Anderson published in the August 17 issue of the *New York Times.*

During 1915 Chipman and O'Neil made a detailed survey of the coast from the Cape Parry peninsula to Stapylton Bay (116½° W.); from here Cox carried it on as far as the Rae River, at the western head of Coronation Gulf. This hitherto unexplored river was surveyed for about seventy-five miles above its mouth, and a traverse was made overland to Stapylton Bay to ascertain the geology. Later Cox and O'Neil continued eastward along the southern shore of Coronation Gulf, surveying the region about Port Epworth (112½° W.) and the Kogluktualuk (112° W.), a large river with many waterfalls. In August and September the coast east from Cape Barrow (111° W.) around Moore Bay (110⅓°), Arctic Sound, and Hood River (109½°) and part of Bathurst Inlet were surveyed in detail topographically and geologically. These surveys were completed in the spring of 1916 and the remainder of the coast west of Cape Barrow filled in. They will considerably rectify our present maps of the Bathurst Inlet region, which go back to Sir John Franklin's hurried voyage in 1846. For instance, over one hundred and fifty islands were mapped in the region at the western side of the entrance to the inlet, where three large islands, Chapman, Lewis, and Marcet, have heretofore been indicated. The geological investigations, the main work of the party, were very encouraging. In addition to the known occurrences a large new field of native copper was mapped and studied.

Complete meteorological records were kept for three years continuously. Tidal observations were made during the winter in Dolphin and Union Strait, as well as deep-sea dredgings and soundings here and elsewhere. About one thousand specimens of birds and mammals were brought back. Numerous photographs and cinematograph pictures of native life, natural history objects, and scenery were taken.

In ethnology, Jenness did valuable work, some of which is mentioned in the note immediately below. From April to November, 1915, he sledged and packed with the primitive Eskimos in the interior of Victoria Island. Returning over the ice to the mainland, he made extensive ethnological and archeological collections, including one hundred phonograph records of folklore. The manners, customs, and games of the Eskimos were studied.

Doctor Anderson's cablegram also told of the activities of the northern party of the expedition and of Stefansson's plans. The *Mary Sachs* was hauled up on the beach at Cape Kellett, Banks Island, in charge of Captain Bernard and an Eskimo crew for a reserve station. The *North Star* was unable to proceed farther north than a small unnamed island north of Robilliate Island, west of Banks Island, and was also hauled up safely as a base for ice trips. Her crew joined the *Polar Bear's* exploring parties.

The *Polar Bear,* in charge of Stefansson, made an unsuccessful attempt to sail up the west side of Banks Island in 1915. She wintered near Princess Royal Island, Prince of Wales Strait, between Banks and Victoria Islands. The death of several dogs prevented a projected ice trip to Beaufort Sea. But the main work of the party was to be the exploration of the newly discovered land north of Prince Patrick Island (see the October, 1915, *Bull. Amer. Geogr. Soc.,* pp. 766-769). The party left for this trip in May to remain in the field as long as conditions would permit. If the coast of the new land turned southwest and it seemed possible that no land existed in Beaufort Sea within sledging distance of Banks Island or Prince Patrick Island, the party would endeavor to return in 1916. But from the location of the vessels and the scattering of the various parties it is hardly thought probable that the northern party will return this year. The explorers are well supplied for another year or two with staples, which are supplemented by musk-oxen and other game.

Explorations in Victoria Island. Word has been received of the safe return of Mr. Diamond Jenness from Victoria Island after a season's work with the Eskimos. Mr. Jenness is ethnologist of the southern party of the Canadian Arctic Expedition. His plan of work is outlined in a report by Dr. R. M. Anderson (*Summary Rept. Geol. Survey of Canada for 1915,* Ottawa, 1916, pp. 228 and 230). The party started with a family of Eskimos on April 13, 1915, about the time the barren-ground caribou began to migrate in numbers from the mainland across to Victoria Island, and planned to follow the migration north across Wollaston Peninsula (for locations, see map accompanying "Victoria Island and the Surrounding Seas" by Vilhjalmur Stefansson, *Bull. Amer. Geogr. Soc.,* Vol. 45, 1913, pp. 93-106). Thence they were to journey to Lake Tahieryuak in the interior or west-central part of Victoria Island and, after gathering ethnographic material concerning little-known groups of Eskimo, return in the autumn, following the caribou southward.

Though no report other than that in the preceding note is yet available on this latest work, important records may be expected, for Mr. Jenness had already made many trips among the Eskimos of the region. Doctor Anderson reports that Mr. Jenness' studies along the coast in the region of the winter station have resulted in important discoveries in relation to Eskimo migrations, tribal distinctions and limits, customs, and language.

PHYSICAL GEOGRAPHY

A Graphic Record of Weather. A simple method of keeping a graphic record of daily weather has many advantages over the usual written description. Mr. E. T. Quayle, assistant in the Commonwealth Bureau of Meteorology of Australia, has recently described a simple scheme for a graphic record which he has used satisfactorily for over twenty-five years. The record deals chiefly with cloud types and their amounts, movements, and changes, but includes also winds, rain, and electrical and other phenomena. The time (hour of the day) is shown along a horizontal line, and the cloud levels are indicated vertically. The cloud forms are represented as seen in section, or as they would appear on the horizon. The level to which the cloud belongs is indicated by the height of its position on the vertical scale of the diagram. The amount of cloud and its duration are partially suggested by the way the stratum is broken, or by the addition of a figure to show a numerical estimate. The rate of movement may be shown by different amounts of feathering on arrows which show the direction of movement. Wind directions are indicated by arrows at the bottom of the diagram. Rain, lightning, etc., are suggested by conventional symbols or by sketches. Short supplementary notes may be added when necessary. The illustrations of this method of keeping a graphic weather record, given in Mr. Quayle's report, show the value of the scheme in presenting at a glance a vivid and interesting picture of each day's weather (E. T. Quayle: A Graphical Method of Showing the Daily Weather, especially Cloud Types, *Commonwealth Bur. of Meteorol. Bull. 12,* Melbourne, 1916). R. DEC. WARD.

Rainfall Forecasts and Wind Directions. The "patchiness" of rainfall, both as to distribution and amount, in our ordinary cyclones is a well-known fact and one which often makes weather forecasting a difficult matter. Mr. H. H. Clayton, chief of the forecast division of the Argentine Meteorological Office, has approached this difficulty from the forecaster's side and has presented some new and interesting facts. The ascent of air, resulting in rainfall, may be induced by (1) topography; (2) heating at the earth's surface, which determines the formation of local ascending currents resulting in cumulus clouds and local showers; (3) converging or opposing winds, determined by horizontal differences of temperature and pressure. While both (1) and (2) must be kept in mind by the forecaster, the third is the main cause of our ordinary

rains. When winds are diverging, a descent of air and fair weather are indicated. When winds are converging, ascending air is indicated, accompanied by expansion, cooling, and condensation. The intensity of rainfall is determined by (a) the angle of convergence, (b) wind velocity, (c) moisture of the air, (d) topography. Mr. Clayton's method in forecasting is to predict the pressure distribution for the following day, to draw in the inferred wind arrows, and then to locate the areas of converging and of dive ging currents. The former are then marked as rainfall districts. When the relative humidity is low (60% or less), rain does not result from converging winds, and the rain areas are there omitted (*Monthly Weather Rev.*, Vol. 44, 1916, pp. 80-81).

R. DEC. WARD.

HUMAN GEOGRAPHY

History and Geography: The Nature of Their Relation. A note of warning against exaggerating the relation between geography and history is sounded by Brunhes in his introduction to the second year's (1913-1914) course in human geography at the Collège de France (Jean Brunhes: La géographie de l'histoire, *Rev. de Géogr. Annuelle*, Vol. 8, 1914-15, pp. 1-71). According to this eminent investigator, all history does not proceed from geography, neither does history always repeat itself when enacted on the same physical stage. In other words the element of period, i. e. of time and of changing conditions, must also prevail. A strictly mathematical interpretation of the influence of geography on history is therefore impossible. The very essence of the relation requires the utmost latitude in its applications. A characteristic custom, facts of a social character, economic or political, for example, can generally be made to fit within geographical frames. Persistence of the relation in time or space, however, does not necessarily ensue. The mistake that is often made consists in an attempt to prove the continuity of interactions which in reality are exceedingly variable in character.

To illustrate Brunhes's idea, mention may be made of the minarets in Bosnia-Herzegovina, cited by him. Bosnia is a well-forested region, while Herzegovina is characterized by broad plateaus of bare limestone. Wooden minarets prevail in the former province. In the latter they are built of stone. We have here differences evidently due to geography. But the influence of the land does not end with the material used in the construction of minarets. The shape or rather the type of minaret is also determined by this material. The wooden minaret ends in the form of a circular terrace roofed over by a wooden reproduction of an enlarged Malaysian hat. In the stone minaret the balcony is placed as a ring at mid-height, the structure being prolonged shaft-like to taper into a point.

It would appear at first glance as if the relation ended here. Nevertheless in recent years the stone minaret tends to replace its wooden variety of type throughout richly wooded Bosnia. The change is economic and based on human experience. The stone structure has been found to be more enduring. It is less subject to destruction by fire, and the deterioration due to rain is trifling. Therefore in all the large cities of the wooded belt—Sarayevo and Jajce are given as examples—the minarets of recently built mosques are built of stone. The course of normal evolution in geographical influences is suggested by this example of the transition from a blind to an intelligent response to environment, the latter term being taken in the sense of a constantly broadening field as man's conquest of distance and of transportation facilities becomes more thorough.

GEOGRAPHICAL NEWS

The Physiographic Committee of the U. S. Geological Survey. Through the courtesy of the Director of the U. S. Geological Survey, we are now able to amplify the brief announcement made in the February *Review* (p. 367) to the attention henceforth to be paid to physiography by the Survey in its work. The Chief Geologist, David White, recently made provision for the utilization of physiographic work done in connection with geologic investigations and for the directing and systematizing of physiographic research generally by a standing committee. For this purpose the Physiographic Committee, which has been in existence for several years, has been reorganized and given definite duties. It now consists of the following members: M. R. Campbell, Chairman, F. E. Matthes, O. E. Meinzer, E. W. Shaw, and Philip S. Smith. Its duties, as outlined by the Chief Geologist, are:

(1) To read and pass critically and advisorily upon physiographic papers or physiographic chapters or sections in other papers submitted for publication by the Survey.

(2) To consider the classification and nomenclature of physiographic provinces.

(3) To prepare or make recommendations for the preparation of physiographic descriptions, in popular language, to be printed on the backs of topographic maps.

(4) To consult with geologists regarding the solution of physiographic problems.

(5) To formulate the usage of physiographic terms, in continuance of the work of the old committee.

(6) To confer with chiefs of section and with the Chief Geologist regarding physiographic work to be undertaken by the Survey.

It is to be hoped that physiographers and geologists throughout the country will confer freely with the committee upon any subject that may properly come within its sphere of activities, but especially regarding uniformity of usage and greater exactness of definition of physiographic terms. The committee expects to take up, from time to time, as opportunity offers, those terms which have been used loosely or used in more than one sense, and to endeavor to formulate definitions which will be acceptable to the majority of physiographers. In framing these definitions special weight will be given to the following factors: (1) etymology and literal meaning of the word, (2) priority of use, (3) currency of use, (4) avoidance of the use of more than one word to express a single idea, (5) avoidance of the use of any word in more than one sense, and (6) exactness of definition, especially in delimiting features or processes which are closely related or which merge one with another.

After the definitions have received the provisional approval of the committee, it is proposed to send copies of the argument and decision to physiographers and geologists of recognized authority for their consideration. If the decision is generally approved, the findings of the committee will doubtless be adopted by the Geological Survey, but, should there be much disagreement, the committee will reconsider the question.

It is hoped by this procedure to determine the best usage, to make definitions more exact and unequivocal, and to secure greater uniformity of usage, not only in the Geological Survey but also among physiographers and geologists outside of that organization.

PERSONAL

DR. CHARLES C. ADAMS has been appointed to the professorship of forest zoölogy in the newly formed department of zoölogy at the New York State College of Forestry of Syracuse University.

PROF. EDWARD W BERRY of the geological department of Johns Hopkins University has been doing work in Mississippi and Texas for the U. S. Geological Survey during the summer.

MR. WILLIAM BOWIE of the U. S. Coast and Geodetic Survey has recently been appointed a member of the United States Permanent Commission of the International Geodetic Association.

MR. CARL CHESWELL FORSAITH has been awarded the second Walker Prize, offered by the Boston Society of Natural History, for his essay on "The Relation of Peat Deposits to the Formation of Coal."

DR. WILLIAM H. HOLMES, chief of the Bureau of American Ethnology, has been made Corresponding Associate of the Academia Nacional de Historia of Colombia.

DR. ALEŠ HRDLIČKA of the United States National Museum has been made Corresponding Associate of the Academia Nacional de Historia of Colombia.

DR. OTTO KLOTZ, Dominion Astronomer, Ottawa, received the honorary degree of Doctor of Laws at the commencement of the University of Pittsburgh in June.

PROF. E. M. LEHNERTS of the department of geography of the University of Minnesota has succeeded D. Lange as president of the Minnesota Forestry Association.

PROF. B. E. LIVINGSTON of the department of botany of Johns Hopkins University read a paper on "A Quarter-Century of Growth in Plant Physiology" at the quarter-centennial celebration held at the University of Chicago, June 2-6.

DR. F. J. H. MERRILL, from 1899 until 1904 state geologist of New York, has moved to Los Angeles, where he will resume consultant practice in geology and mining engineering.